K002905

OCT 1 9 2000

510(k) Summary
Prepared 15 September 2000

Applicant's Name and Address

Beckman Coulter, Inc.
P.O. Box 269006
San Diego, CA 92196-9006

Contact Person: Mara Caler
858 621 4583

Alternate Contact Person: Greg Payne
858 621 4580

Device Name

Trade Name - Access® Thyroglobulin Reagents on the Access® Immunoassay Systems
Common Name – Thyroglobulin Chemiluminescence Immunoassay
Classification name – Thyroglobulin Test System (21 CFR 866.6010)

Predicate Device

Kronus OptiQuant™ Thyroglobulin
Kronus
Boise Research Center
12554 West Bridger St., Suite 108
Boise, Idaho, 83713 USA

510(k) Number: K991720

Device Description

The Access® Thyroglobulin reagents and the Access® Immunoassay Analyzer comprise the Access® Immunoassay System for the quantitative determination of thyroglobulin in human serum and plasma.

Intended Use

The Access® Thyroglobulin assay is a paramagnetic particle, chemiluminescent immunoassay for the quantitative determination of thyroglobulin levels in human serum and plasma, using the Access® Immunoassay Systems. This device is intended to aid in the monitoring for the presence of local and metastatic thyroid tissue in patients who have had thyroid gland ablation (using thyroid surgery with or without radioactivity) and who lack serum thyroglobulin antibodies.

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Background, Clinical Indications and Significance

Thyroglobulin (Tg) is a large glycoprotein (MW ~ 660,000) that is stored in the follicular colloid of the thyroid gland. Thyroglobulin functions as a prohormone in the intrathyroid synthesis of T4 and T3. Lysosomes containing proteases cleave T3 and T4 from Tg, resulting in release of T3 and T4.

Thyroglobulin is present in the serum of normal healthy individuals and can be elevated in numerous disorders which disrupt thyroid tissue. Elevated circulating levels of Tg have been reported in a number of thyroid conditions including Hashimoto's disease, Graves' disease, thyroid adenoma, subacute thyroiditis and thyroid carcinoma.

Thyroid cancer is a relatively common form of cancer. It is not generally highly malignant, and normal life span can be obtained with appropriate follow-up and treatment. Females are affected 2 to 3 times more frequently than males. Thyroglobulin has become a useful tool in the follow-up of patients with differentiated thyroid carcinoma (i.e. papillary-follicular or follicular carcinoma of the thyroid). The thyroid is the only source of Tg; therefore, the serum Tg level will drop to a very low or undetectable level after total or near-total thyroidectomy and successful radioiodine ablation of the residual thyroid tissue. A rise in the serum level of Tg points to the recurrence of the disease. Thyroglobulin levels in patients who have undergone only a partial thyroidectomy will retain measurable levels of Tg, depending on how much tissue is remaining after surgery. These patients can be monitored by Tg measurement, but the post-surgical Tg level must be taken into account.

An additional monitoring tool used in conjunction with Tg is the whole body scan (WBS) following a dose of ^{131}I. Generally, both Tg and WBS can be used to follow newly diagnosed and treated patients.

A limiting factor in the use of serum Tg measurements is the presence of Tg autoantibodies found in some patients. These antibodies may interfere with the immunoassay used to measure Tg and can cause false high or false low values. It is important to determine the levels of Tg autoantibodies in patients requiring serum Tg measurements.

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Comparison of Technological Characteristics

Both the Access® Thyroglobulin Immunoassay and the Kronus OptiQuant™ Thyroglobulin assay quantitatively measure serum thyroglobulin by means of immunoassays. Both assays use mouse monoclonal antibodies for both the capture antibody and the signal antibody

The Access® Thyroglobulin immunoassay measures thyroglobulin using an automated system with paramagnetic particle solid phase technology and chemiluminescent signal detection. The Kronus OptiQuant™ Thyroglobulin immunoradiometric assay measures thyroglobulin using a solid phase technology and ^{125}I-labeled antibody detection.

The Access® Thyroglobulin immunoassay utilizes an alkaline phosphatase conjugated thyroglobulin signal antibody with biotinylated monoclonal anti-thyroglobulin antibodies as the capture phase (the coated paramagnetic particle), while the Kronus OptiQuant™ Thyroglobulin immunoradiometric assay utilizes an ^{125}I-labeled monoclonal anti-thyroglobulin signal antibody and a monoclonal anti-thyroglobulin antibody coated polypropylene tube.

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Summary of Studies

Specificity: There was no significant interference from therapeutic drugs or compounds similar to thyroglobulin. In addition, there was no significant interference from potential sample contaminants (total protein, bilirubin, hemoglobin, and triglycerides).

Analytical Sensitivity: The lowest detectable level of thyroglobulin distinguishable from zero (Access® Thyroglobulin Calibrator S0) is 0.03 ng/ml. An analytical sensitivity of 0.1 ng/mL will be claimed in the labeling.

Recovery: Linearity studies performed by diluting 8 human serum samples at various levels with Access® Thyroglobulin Zero Calibrator provided an average recovery of 99.7%, with individual recoveries ranging from 90.4% to 113.5%.

Precision: Within-run assay imprecision ranged from 0.9% CV to 4.4% CV. Between-run assay imprecision ranged from 0.0% CV to 4.9% CV.

Correlation: A comparison of thyroglobulin values from 224 samples, ranging from approximately 0.5 to 323.0 ng/ml, run with both the Access® Thyroglobulin immunoassay and the Kronus OptiQuant™ Thyroglobulin immunoradiometric assay demonstrated an acceptable correlation coefficient of: $r = 0.9721$; and a negative bias with a slope of $y = 0.6691x + 3.5724$ across the range of the assay (approximately 0 – 500 ng/mL). Good correlation is obtained between the Access Thyroglobulin assay vs. the Kronus assay for samples up to 50 ng/mL with a correlation coefficient of: $r = 0.9604$; and a slope of $y = 0.9217x - 0.7800$ across the clinical significant range of the assay (approximately 0 – 50 ng/mL).

Clinical Data: The data generated demonstrates comparable clinical sensitivity and clinical specificity for the Access Thyroglobulin and the Kronus Thyroglobulin assays.

Conclusion

The data generated demonstrates acceptable non-clinical (laboratory) performance, and good correlation between the Access Thyroglobulin assay and the Kronus Thyroglobulin assay. Clinical sensitivity and clinical specificity for the Access Thyroglobulin and the Kronus Thyroglobulin assays were found to be substantially equivalent.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

OCT 1 9 2000

Ms. Mara Caler
Regulatory Specialist
Beckman Coulter, Inc
P.O. Box 269006
San Diego, California 92196-9006

Re: K002905
Trade Name: Access® Thyroglobulin Reagents on the Access® Immunoassay Systems
Regulatory Class: II
Product Code: MSW
Dated: September 15, 2000
Received: September 18, 2000

Dear Ms. Caler:

We have reviewed your Section 510(k) notification of intent to market the device referenced above and we have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (Premarket Approval), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 895. A substantially equivalent determination assumes compliance with the Current Good Manufacturing Practice requirements, as set forth in the Quality System Regulation (QS) for Medical Devices: General regulation (21 CFR Part 820) and that, through periodic QS inspections, the Food and Drug Administration (FDA) will verify such assumptions. Failure to comply with the GMP regulation may result in regulatory action. In addition, FDA may publish further announcements concerning your device in the Federal Register. Please note: this response to your premarket notification submission does not affect any obligation you might have under sections 531 through 542 of the Act for devices under the Electronic Product Radiation Control provisions, or other Federal laws or regulations.

This letter will allow you to begin marketing your device as described in your 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801 and additionally 809.10 for in vitro diagnostic devices), please contact the Office of Compliance at (301) 594-4588. Additionally, for questions on the promotion and advertising of your device, please contact the Office of Compliance at (301) 594-4639. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its internet address "http://www.fda.gov/cdrh/dsma/dsmamain.html".

Sincerely yours,

Steven Gutman

Steven I. Gutman, M.D., M.B.A.
Director
Division of Clinical Laboratory Devices
Office of Device Evaluation
Center for Devices and Radiological Health

Enclosure

510(k) Number (if known):

Device Name: Access® Thyroglobulin

Indications For Use:

The Access® Thyroglobulin assay is a paramagnetic particle, chemiluminescent immunoassay, for the quantitative determination of thyroglobulin levels in human serum and plasma, using the Access® Immunoassay Systems. This device is intended to aid in the monitoring for the presence of local and metastatic thyroid tissue in patients who have had thyroid gland ablation (using thyroid surgery with or without radioactivity) and who lack serum thyroglobulin antibodies.

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Concurrence of CDRH, Office of Device Evaluation (ODE)

Peter E. Maheux

(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number K002905

Prescription Use ✓ OR Over-The Counter Use _____
(Per 21 CFR 801.109)

(Optional Format 1-2-96)